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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,963	09/18/2003	Motoyoshi Murakami	10873.1304US01	8328

7590 02/22/2007  
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Minneapolis, MN 55402

EXAMINER
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DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/665,963

**Applicant(s)**

MURAKAMI ET AL.

**Examiner**

David D. Davis

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-28 is/are pending in the application.
- 4a) Of the above claim(s) 9-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 9-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group and Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 31, 2005.

### *Drawings*

2. The amendment filed November 3, 2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Figures I, IIa, IIb, III.

Applicant is required to cancel the new matter in the reply to this Office Action.

### *Claim Rejections - 35 USC § 112*

3. Claim 1 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does mentions "super-lattice" in the paragraph bridging pages 42 and 43. However, the specification does not enable a skilled artisan at to make and/or use a super lattice structure in a recording layer.

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4. Claim 1 is also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, with respect to claim 2, the specification does not enable a skilled artisan to make and/or use a recording medium satisfying the product of the coercive force and saturated magnetization relationship that approaches infinity ( $\infty$ ).

***Claim Rejections - 35 USC § 102/103***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3-8 and 28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shiratori et al (US 6,027,825). As per claims 1 and 28, Shiratori et al shows in figure 23A a magnetic recording medium including a disk substrate and a recording layer 1704. The recording layer 1704 of Shiratori et al as disclosed in column 15, lines 11-55 has magnetic anisotropy along a direction perpendicular to a surface of the disk substrate. Also, disclosed in Shiratori et al column 15, lines 11-55, is the recording layer 1704 having a super-latticed structure by with the recording layer is formed so that a product of a coercive force  $H_c$  and saturated magnetization  $M_s$  of the recording layer 1704 ( $M_s \cdot H_c$ ) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer 1704 can be decreased to a desired value.

As per claim 3, Shiratori et al shows in figure 23A a reproduction layer 1701 formed between the recording layer 1704 and the disk substrate for reproducing information recorded in the recording layer 1704. Figure 23A also shows an intermediate layer 1703 formed between the reproduction layer 1701 and the recording layer 1704 for controlling exchange coupling between the reproduction layer 1701 and the recording layer 1704. The recorded information is thermomagnetically recorded as magnetic domains in the recording layer 1704, the magnetic domains are transcribed into the reproduction layer 1701, and a domain wall between the magnetic domains that are transcribed into the reproduction layer 1701 shifts along a direction

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parallel to a surface of the reproduction layer 1701 so that the recorded information is reproduced. See Shiratori et al column 15, lines 11-55.

As per claim 5, the table in column 15 of Shiratori shows the recording layer including at least Tb, Fe and Co. As per claim 6, figure 12 of Shiratori, for example shows the recording layer being laminated.

Regarding claim 1, the magnetic recording medium describe in column 15, lines 11-55 and shown in figure 23A of Shiratori et al is considered to flow from the claimed product relationship of the coercive force and the saturated magnetization.

Assuming arguendo that the recording layer of Shiratori et al is not a super latticed structure, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the recording layer of Shiratori et al with a supper lattice structure to provide a regular, periodic configuration of points, particles, or objects throughout an area or a space, especially the arrangement of ions or molecules in a crystalline solid, as defined by *The American Heritage® Dictionary of the English Language, Fourth Edition*.

Also, assuming arguendo that the magnetic head of Shiratori et al is silent as to the claimed product relationship, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a magnetic medium that flowed from the claimed product relationship of the coercive force and the saturated magnetization so that “the operation of the medium is stabilized”. See column 15, lines 52-55 of Shiratori et al.

Regarding claims 4 and 7-8, Shiratori et al is considered to disclose a recording layer having a length or thickness 2  $\mu\text{m}$  or less. Assuming arguendo that Shiratori et al is silent as to a short mark length or thickness 2  $\mu\text{m}$  or less, it would have been obvious to a person having

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ordinary skill in the art at the time the invention was made to provide the magnetic recording medium of Shiratori et al with a short mark length or thickness  $2\mu\text{m}$  or less, which is well within the purview of a skilled artisan and absent an unobvious result, to provide a medium as thin as possible while maintaining stabilization.

### *Response to Arguments*

9. Applicant's arguments filed November 3, 2006 have been fully considered but they are not persuasive. In the second paragraph on page 7, applicant traverses the rejection that "the specification does not enable a skilled artisan to make and/or use a super lattice structure in a recording layer". Applicant then attempts to explain this traversal in the following paragraphs on pages 7 and 8. It is curious that this explanation fails to identify the location, in the instant specification as **originally filed**, where there is support for the subject matter rejected, supra. Instead, applicant attempts to support the traversal by new matter found in the figures, which has not been entered and is rejected supra. As a result, the rejection has not been withdrawn as requested by applicant.

In the second full paragraph on page 9, applicant asserts, "Since a coercive force and saturated magnetization are finite values, the produce of the coercive force and the saturated magnetization naturally is a finite value." The lack of enablement rejection, supra, does not suggest that the coercive force and saturated magnetization are **not** finite values. The rejection is that **the specification does not enable** a skilled artisan to make and/or use a recording medium satisfying the product of the coercive force and saturated magnetization relationship that **approaches** infinity ( $\infty$ ).

Applicant additionally asserts on pages 9 and 10 that the applied prior art does not teach or disclose a recording layer with a super lattice structure. As stated supra, also, disclosed in Shiratori et al column 15, lines 11-55, is the recording layer 1704 having a super-latticed structure by which the recording layer is formed so that a product of a coercive force  $H_c$  and saturated magnetization  $M_s$  of the recording layer 1704 ( $M_s \cdot H_c$ ) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer 1704 can be decreased to a desired value.

Assuming arguendo that the recording layer of Shiratori et al is not a super latticed structure, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the recording layer of Shiratori et al with a super lattice structure to provide a regular, periodic configuration of points, particles, or objects throughout an area or a space, especially the arrangement of ions or molecules in a crystalline solid, as defined by *The American Heritage® Dictionary of the English Language, Fourth Edition*.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37



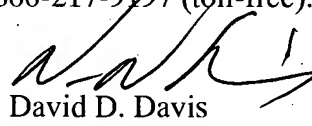
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on 571-272-7023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David D. Davis  
Primary Examiner  
Art Unit 2627

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